ABSTRACT

An L2/L3 network (e.g., Multi-protocol Label Switched (MPLS) network) having an MPLS-enabled router and a plurality of MPLS-enabled bridges is provided for implementing Label Switched Path (LSP)-enabled virtual routing. The router may be at the edge of the network and may be an Egress Label Switching Router (E-LSR). The E-LSR may also function as an LSR and/or as an ingress LSR (I-LSR) for multiple LSPs at the same time at line rate. The E-LSR may receive a packet from one of the bridges over an LSP, remove a label (e.g., MPLS label), and then route the PDU to an external network using IP (e.g., IPv4 or IPv6) protocol. In addition, the E-LSR may also receive a packet from one of the bridges over an LSP, remove a label, route or bridge the packet, apply a new label, and then label switch it to one of the VLAN bridges over an LSP. Further, the E-LSR may also receive a packet from one of the bridges over an LSP, swap labels, and then label switch it to one of the bridges over an LSP.